SCIENCE SUPPORTING THE DAIRY-WEIGHT MANAGEMENT CONNECTION

A growing body of scientific research shows a connection between dairy food consumption and improved body weight and/or composition. Some of these studies indicate that enjoying 3 servings of milk, cheese, or yogurt each day -- as part of a reduced-calorie weight loss plan -- can help people lose more weight by burning more fat than just by cutting calories alone.

The current body of research includes randomized clinical trials (considered the "gold standard" of science), observational, animal and cellular studies conducted by leading research institutions throughout the country. This intriguing connection is being studied worldwide – with positive results reported in Denmark, Greece, Italy and other countries.

The evidence indicates that the mix of nutrients found in dairy foods, especially calcium and protein, may be responsible for helping the body break down and burn fat. Additional research is under way to further understand the dairy-weight management connection. In the meantime, experts suggest this emerging role for dairy foods is another good reason for people to meet current dietary recommendations of 3 servings a day of lowfat or fat free milk, yogurt or cheese.

Randomized Clinical Trials

Randomized clinical trials have found a significant relationship between calcium/dairy product intake and reduced body weight and/or fat in overweight and obese adults. The studies report that dairy foods exert a significantly greater effect on body weight, fat and inches around the waist compared to calcium supplements or a low-dairy diet.

- In a 24-week study of 32 obese adults, those who consumed 3 servings of milk, yogurt or cheese a day while on a balanced, reduced-calorie diet (500 calorie deficit), lost significantly more weight and fat than those who consumed similar amounts of calcium through supplements or consumed little or no dairy. Participants on the high-dairy diet (1200-1300 mg calcium) lost 70% more body weight and 64% more body fat than those on the low-dairy diet.
  Zemel MB, Thompson W, Milstead A, Morris K, Campbell P. Calcium and dairy acceleration of weight and fat loss during energy restriction in obese adults. *Obesity Research.* 2004. 12(4): 582-590.

- In a 12-week multi-center trial of 68 overweight and obese adults consuming a reduced-calorie diet, the participants who consumed 3 servings of dairy a day lost more body fat compared to those who ate an equal amount of calcium through supplements or a low-dairy diet. All participants ate a reduced-calorie diet, but people on the high-dairy diet lost nearly twice as much body fat, more trunk fat and more inches around the waist compared to the other groups.
  Zemel MB, Teegarden D, Van Loan M., Schoeller DA., Matkovic V., Lyle RM., Craig BA. Role of dairy products in modulating weight and fat loss: A multi-center trial. *FASEB J*. 2004. 18(5): A845. Abstract.

- A 12-week study of 34 obese adults on a reduced-calorie diet found that those who consumed a calcium-rich diet supplied by 3 servings of yogurt a day lost 22% more weight, 66% more body fat and 81% more trunk fat compared to those who simply reduced calories and consumed little or no dairy. The participants who ate 3 servings of yogurt also lost significantly more inches around the waist compared to those on the low-dairy diet.
  Zemel MB, Richards J, Russel J, Milstead A, Gehardt L, Silva E. Dairy augmentation of total and central fat loss in obese subjects. *International Journal of Obesity.* 2005. 29(4):341-7.

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- A 24-week study of 34 obese African-American adults found that those who consumed 3 servings of milk, yogurt, or cheese per day on a weight-maintenance study (consumption of adequate calories to maintain weight) experienced a greater loss of total body fat and trunk fat and an increase in lean body mass compared to participants who consumed less than 1 serving of milk, yogurt, or cheese per day. The high-dairy group also experienced a decrease in insulin and systolic blood pressure compared to the low-dairy group.
  Zemel MB, Nocton J, Richards J, Mistead A, Gehardt L, Campbel PJ. Increasing dairy calcium intake reduces adiposity in obese African-American adults. *Circulation*. 2002; 106 (suppl 2) II-610. Abstract.

Observational Studies

Epidemiological or observational studies do not confirm a cause-and-effect relationship, but they are valuable in identifying associations and guiding researchers to investigate a connection further. Multiple observational studies show that people who consume more calcium and dairy foods weigh less or have less body fat than those who consume little or no dairy. Researchers speculate that a low calcium diet may be a risk factor for obesity. One expert suggested that correcting the country's calcium deficit may reduce the incidence of overweight and obesity by 60-80%.

- Results from the CARDIA study indicate that increased dairy consumption may protect overweight individuals from becoming obese or developing insulin resistance syndrome (also known as metabolic syndrome), which is associated with increased abdominal fat. Obesity and insulin resistance syndrome are major risk factors for type 2 diabetes and cardiovascular disease. This 10-year prospective study examined the dietary habits of more than 3,000 adults aged 18 to 30 years. Increased dairy consumption was equally beneficial to African Americans and Caucasians, and both reduced-fat and full-fat dairy products were effective.
  Pereira MA, et al. Dairy consumption, obesity, and the insulin resistance syndrome in young adults: The CARDIA Study. *Journal of the American Medical Association*. 2002; 287:2081-2089.

- In this reevaluation of five clinical studies originally designed to measure bone health, researchers found that a higher intake of calcium (primarily from dairy foods) was associated with a lower BMI and body weight. Results from this study indicate that women weighed an average of 18 pounds less for every 1,000 mg of calcium consumed.
  Davies KM, Heaney RP, Recker RR, et al. Calcium intake and body weight. *Journal of Clinical Endocrinology & Metabolism*. 2000; 85(12): 4635-4638.

- Data from more than 550 women were reevaluated to assess the effects of calcium on weight gain. While calcium is only one factor that potentially affects obesity, findings from this reanalysis indicate that increasing calcium intakes to recommended levels may reduce the incidence of overweight and obesity by 60-80% in a population. This estimate and conclusion are based on data projection.
  Heaney RP. Normalizing calcium intake: projected population effects for body weight. *Journal of Nutrition*. 2003; 133:268S-270S.

- Using data from adults in the Quebec Family Study, researchers found that a higher calcium intake was significantly associated with lower body weight and fat in women and found a similar trend in men. Women in the study who consumed inadequate amounts of calcium were more likely to be overweight. After controlling for other variables, women consuming less than 600 mg of calcium a day had greater body weight, BMI, percentage body fat, fat mass, waist circumference and abdominal tissue compared to those consuming 600 mg of calcium or more. Dairy foods provided about 60% of the calcium in the study subjects' diets.
  Jacqmain M, Doucet E, Despres JP, Bouchard C, Tremblay A. Calcium intake, body composition, and lipoprotein-lipid concentrations in adults. *American Journal of Clinical Nutrition*. 2003; 77:1448-1452.

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- Researchers at the University of Colorado measured the amount of body fat burned over a 24-hour period in adults using a metabolic chamber. In their retrospective analysis of 35 non-obese healthy adults, a higher dietary calcium intake while in the metabolic chamber was associated with burning significantly more body fat, even during sleep.
  Melanson EL, et al. Relation between calcium intake and fat oxidation in adult humans. *International Journal of Obesity*. 2003; 27: 196-203.

- In young adult women (aged 18 to 31 years) enrolled in a two-year exercise program, calcium from dairy foods was associated with lower body weight and body fat in women consuming fewer than 1900 calories per day. The researchers concluded that the effect of calcium was specific to dairy calcium because total calcium and dairy, when adjusted for calories, predicted changes on body weight and body fat, whereas non-dairy calcium did not.
  Lin YC, Lyle RM, McCabe LD, McCabe GP, Weaver CM, Teegarden D. Dairy calcium is related to changes in body composition during a two-year exercise intervention in young women. *Journal of the American College of Nutrition*. 2000; 19(6):754-760.

- A study that used data from the Quebec Family Study investigated weight/fat changes in relation to how participants ate from various food groups. Only participants who ate more from the dairy group and from the fruit group (but not in combination) gained less weight over time.
  Drapeau G, et al. Modifications in food-group consumption are related to long-term body-weight changes. *American Journal of Clinical Nutrition*. 2004; 80: 29-37.

- Data from more than 800 adults enrolled in the HERITAGE Family Study was evaluated and found that high daily calcium intake (including from dairy foods) is associated with lower weight.
  Loos R, et al. Calcium intake and body composition in the HERITAGE Family Study. *Obesity Research*. 2003; 11(S): 597-P.

- In a cross-sectional study of 582 men and women, people who consumed more calcium had a lower percent of body fat and trunk fat than individuals who consumed less calcium.
  Martin G, et al. Calcium intake is correlated with percent body fat and percent trunk fat, but not serum lipids, in the Newfoundland population. *Obesity Research*. 2004; 12(10): A217; 851-P. Abstract.

- Researchers found that a diet rich in reduced-fat dairy products and high-fiber foods may lead to smaller gains in body mass index in women and smaller gains in waist circumference in both women and men.
  Newby PK, et al. Food patterns measured by factor analysis and anthropometric changes in adults. *American Journal of Clinical Nutrition*. 2004; 80: 504-513.

- A study originally designed to look at blood pressure found that when individuals consumed a diet high in dairy foods, fruits and vegetables they had a significantly higher resting metabolic rate and utilized more fat for energy than when they consumed a diet high in only fruits and vegetables. This suggests a positive role of dairy foods in weight maintenance.
  De Jonge L, et al. Increased resting metabolic rate and fat oxidation after a diet rich in dairy products. *Obesity Research*. 2004; 12(10): A127; 496-P. Abstract.

- A cross-sectional study from Iran found that people who ate more dairy foods including milk, yogurt and cheese were less likely to be overweight or obese than those who consumed fewer dairy foods.
  Mirmiran P, et al. Dairy consumption and body mass index: An inverse relationship. *International Journal of Obesity*. 2005; 29:115-121.

- A study involving 175 premenopausal and 70 postmenopausal women indicates that calcium intake is associated with the maintenance of normal body weight, the prevention of visceral fat gain (the fat that surrounds internal organs) and insulin sensitivity.
  Choquette S, et al. The effect of calcium intake on body weight, weight regain and insulin resistance. *Obesity Research*. 2004; 12(10): A170; 667-P. Abstract.

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- A study of overweight, previously sedentary adults showed that weight and fat loss, resulting from a 9-month exercise intervention program without dietary restriction, was improved in men by increased calcium consumption.
  Bailey B, et al. The influence of calcium consumption on weight and fat alterations following 9 months of exercise in men and women. *Obesity Research.* 2004; 12(10S): A34; 133-OR. Abstract.

- In a study involving 103 women and the effect of calorie and calcium intake on weight regain after weight loss, researchers found that high dietary calcium intake led to less weight regain during a year follow-up.
  Ochner, C and Lowe, M.R. Opposing effects of calcium and caloric intake on weight regain after diet. Presented at the 13th European Congress on Obesity. *International Journal of Obesity and Related Metabolic Disorders*. 2004; Supplement 1(28): S143. Abstract.

- Men and women in Israel with the highest calcium and milk intakes were the most likely to have a body mass index in the normal range. Women with the highest calcium intakes had the smallest waist circumference.
  Dicker D, et al. On the relationship between dietary calcium intake, body mass index and waist size. Presented at the 13th European Congress on Obesity. *International Journal of Obesity and Related Metabolic Disorders*. 2004; Supplement 1(28): S59. Abstract.

- A report from the Czech Republic found that adults on a reduced-calorie diet lost more weight when their diet included more calcium and more protein.
  Kabrnova K, et al. Association of changes in macronutrient and calcium intakes with body weight change in obese subjects. Presented at the 13th European Congress on Obesity. *International Journal of Obesity and Related Metabolic Disorders.* 2004; Supplement 1(28): S138. Abstract.

- Consuming a diet high in fruit, vegetables, reduced-fat dairy and whole grains, and low in red and processed meat, fast food and soda, was associated with smaller gains in body mass and waist circumference.
  Newby PK, et al. Dietary patterns and changes in body mass index and waist circumference in adults. *American Journal of Clinical Nutrition*. 2003; 77:1417-1425.

- Consuming a reduced-calorie diet with a higher protein to carbohydrate ratio, e.g. diets that include dairy foods, meats, eggs and nuts, resulted in adult women losing more fat and retaining more muscle during weight loss compared to diets with a higher carbohydrate to protein ratio.
  Layman D, et al. A reduced ratio of dietary carbohydrate to protein improves body composition and blood lipid profiles during weight loss in adult women. *Journal of Nutrition.* 2003; 133: 411-417.

- A controlled, clinical trial of young women designed to investigate the effects of calcium on bone health demonstrated that calcium supplementation (1500 mg/day) resulted in less gain in fat mass over a three-year period, compared to a lower-calcium control group.
  Barger-Lux MJ, et al. Calcium supplementation may attenuate accumulation of fat in young women. *Journal of Bone Mineral Research.* 2001; 16:S219. Abstract.

- Researchers analyzing data from NHANES III found that in men and women, increased calcium intake is associated with lower body fat. These data are consistent with animal studies that suggest increased dietary calcium may affect the rate of energy metabolism and reduce the risk of obesity.
  Zemel MB, et al. Regulation of adiposity by dietary calcium. *FASEB Journal*. 2000; 14:1132-1138.

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Mechanism Studies

Researchers have conducted cellular, animal and human studies to better understand the specific mechanism responsible for dairy's impact on body weight and fat. While the exact mechanism is not fully understood yet, the findings indicate that the effect is at the cellular level – suggesting that dairy foods may assist with fat breakdown. Researchers believe the combination of nutrients in dairy foods aid in the fat-burning process and may prevent cells from storing fat.

- Mice allowed free access to diets high in calcium, specifically from dairy foods, had less fat and weight regain after a period of weight loss. An increase in proteins measured in the fat tissue (UCP2) and skeletal muscle (UCP3 and PPAR) indicate an upregulation of fat burning in the animals consuming calcium-rich dairy diets.
  Sun X, et al. Calcium and dairy products inhibit weight and fat regain during ad libitum consumption following energy restriction in Ap2-Agouti transgenic mice. *Journal of Nutrition*. 2004; 134:3054-3060.

- Preliminary findings demonstrate that calcium from dairy foods increases the rate of weight loss in mice fed a low-fat diet and slows the rate of weight gain in mice fed a high-fat diet.
  Serra F, et al. Dietary calcium helps to counteract obesity. Presented at the 13th European Congress on Obesity. *International Journal of Obesity and Related Metabolic Disorders*. 2004; Supplement 1 (28):S146. Abstract.

- A review of studies of both human and animal fat cells helped demonstrate that the calcium in these cells plays a key role in regulating fat metabolism and storage. Specifically, increased calcitriol (the active form of vitamin D) is produced in response to low calcium diets and has been shown to promote the influx of calcium into fat cells, which in turn inhibits fat breakdown and promotes fat storage.
  Zemel MB. Mechanisms of dairy modulation of adiposity. *Journal of Nutrition.* 2003; 133:252S-256S.

- This research review concluded that dietary calcium may play an important role in the regulation of energy metabolism and may result in a reduction of body fat and an acceleration of weight and fat loss during caloric restriction. This review also concluded that dairy sources of calcium demonstrate substantially greater effects than supplemental or fortified sources. Suppression of the active form of vitamin D with high-calcium diets may reduce calcium in the fat cell, inhibit fat storage and increase fat breakdown.
  Zemel, MB. Role of dietary calcium and dairy products in modulating adiposity. *Lipids*. 2003; 38(2):139-146.

- A study demonstrated that 1α,25-dihydroxyvitamin D_3 (the active form of vitamin D)has an inhibitory effect on uncoupling protein 2 (UCP2), a protein found in fat cells that helps the body "burn energy." The researchers concluded that suppression of 1α,25-dihydroxyvitamin D_3 via a high-calcium diet may result in up-regulation of UCP2, and therefore may contribute to the anti-obesity effect of dietary calcium.
  Shi H, et al. 1 alpha, 25-dihydroxyvitamin D3 inhibits uncoupling protein 2 expression in human adipocytes. *FASEB J.* 2002; 16(13):1808-10.

- A study found that calcium, particularly calcium from dairy foods, promotes weight and fat loss in calorie-restricted mice by adjusting energy metabolism. More specifically, the study found that the high-calcium diet suppressed the influx of calcium into fat cells, which stimulated fat breakdown, inhibited fat storage and increased energy wasting through body heat.
  Shi H, et al. Effects of dietary calcium on adipocyte lipid metabolism and body weight regulation in energy-restricted aP2-agouti transgenic mice. *FASEB J*. 2001; 15:291-293.

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- Data from this in vitro study indicate that 1α,25-dihydroxyvitamin D_3 (the active form of vitamin D) allows the influx of calcium into human fat cells, which in turn stimulates the storage of fat and inhibits the breakdown of fat. The researchers conclude that intake of dietary calcium may directly inhibit this mechanism, and therefore may contribute to dietary calcium's anti-obesity effect.
  Shi H, et al. 1,25 Dihydroxyvitamin D3 modulates human adipocyte metabolism via nongenomic action. *FASEB J.* 2001; 15:2751-3.E19.

- Researchers in Denmark determined that a diet high in calcium and including a normal level of protein decreases absorption of dietary fat and may partly explain why a high-calcium diet produces weight loss.
  Jacobsen R, et al. Effect of short-term high dietary calcium intake on 24-h energy expenditure, fat oxidation, and fecal fat excretion. *International Journal of Obesity*. 2005; 29: 292-301.

Research Reviews

Scientists have reviewed the body of literature on dairy and weight and concluded that getting 3 servings of dairy foods each day has the potential to impact weight loss and body composition.

- A research review of laboratory, clinical and population data concluded that increasing dietary calcium intakes may result in reductions in fat mass and blood pressure.
  Zemel MB. Calcium modulation of hypertension and obesity: mechanisms and implications. *Journal of the American College of Nutrition.* 2001; 20:428S-35S.

- A review of data from six observational and three controlled trials revealed a consistent effect of higher calcium intake with lower body fat and/or weight and reduced weight gain at midlife. The data also suggest that increasing calcium intake by the equivalent of two dairy servings per day could reduce the risk of overweight substantially, possibly by as much as 70%.
  Heaney RP, et al. Calcium and weight: clinical studies. *Journal of the American College of Nutrition.* 2002; 21(2): 152S-155S.

- A research review concluded that nutrients found in dairy, including calcium may contribute to the reduction of body weight, body fat and insulin resistance syndrome.
  Teegarden D, et al. Symposium: Dairy product components and weight regulation. *Journal of Nutrition*. 2003; 133: 243S-256S.

- This review summarizes the evidence that increasing dietary levels of high-quality protein while reducing carbohydrates appears to enhance weight loss and improve body composition. Initial findings of the studies reviewed support the use of dietary protein at levels about 1.5g/kg during weight loss. Specifically, one study demonstrated that increasing dietary levels of high-quality protein found in dairy, eggs and lean meats while reducing carbohydrates helped improve body composition of women after 10 weeks on a 1700-calorie diet. The participants on the higher protein diet lost more weight and body fat and less lean mass compared to women on the higher carbohydrate diet.
  Layman D. Protein quantity and quality at levels above the RDA improves adult weight loss. *Journal of the American College of Nutrition.* 2004. 23(6): 631S-636S.

- A review article concluded that dairy products, specifically milk, may be potential functional foods for enhancing weight loss or preventing weight gain. The author notes that weight control effects of milk could be even greater in a healthy, balanced diet that combines other possible functional foods such as tea and nuts along with energy restriction and increased physical activity.
  St-Onge, MP. Dietary fats, teas, dairy, and nuts: potential functional foods for weight control? *American Journal of Clinical Nutrition*. 2005; 81:7-15.

- Dietary calcium may play a role in regulating body weight, supporting the hypothesis that increasing dietary calcium or dairy intake may reduce future weight gain.
  Parikh SJ, et al. Calcium intake and adiposity. *American Journal of Clinical Nutrition.* 2003; 77:281-287.

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Children/Adolescents and Healthy Weight

While the majority of dairy-weight management studies have been conducted with adults, researchers have found that dairy may play a role in promoting a healthy weight or preventing an unhealthy weight gain among children and adolescents. Some studies have shown that a higher intake of dairy foods is associated with a lower percentage of body fat among children and teenagers.

- Adolescent girls ages 9-14 who consumed more milk and milk products weighed less and had less abdominal fat compared to their peers who consumed little dairy. Higher soda intake among these girls was also associated with greater body weight. Researchers found just one extra serving of dairy a day was associated with lower body fat.
  Novotny R, Daida YG, Acharya S, Grove JS, Vogt TM. Dairy intake is associated with lower body fat and soda intake with greater weight in adolescent girls. *Journal of Nutrition*. 2004; 134(8):1905-1909.

- Researchers at Creighton University evaluated the influence of diet on weight gain during 2 years of a study designed to investigate the effects of a calcium-rich diet on bone health. Participants were randomly assigned to a calcium-rich diet supplying at least 1,500 mg of calcium per day (primarily from dairy foods) or their usual diet. While the girls on the calcium-rich diet consumed about 150 more calories per day, they did not have greater increases in body weight, BMI or fat mass compared to girls consuming their usual diets at approximately 900 mg of calcium per day.
  Lappe JM, Rafferty KA, Davies KM, Lypaczewski G. Girls on a high-calcium diet gain weight at the same rate as girls on a normal diet: A pilot study. *Journal of the American Dietetic Association*. 2004; 104:1361-1367.

- Dairy consumption in adolescent girls is not associated with a higher body mass index (BMI) or an increase in percentage of body fat.
  Phillips SM, et al. Dairy food consumption and body weight and fatness studied longitudinally over the adolescent period. *International Journal of Obesity*. 2003; 27(9):1106-1113.

- A study in Italy evaluated the relationship between milk consumption and body mass in nearly 900 children 5-11 years. The researchers found an association between higher milk consumption and lower BMI z-scores, when controlling for sex, age, physical activity, birth weight, parental overweight and education.
  Barba G, Troiano E, Russo P, Venezia A, Siani A. Inverse association between body mass and frequency of milk consumption in children. *British Journal of Nutrition*. 2005; 93(1):15-19.

- Researchers evaluated dairy intake in relation to changes in body fat in 99 children followed over 12 years from ages 2-3 to 12-13 in the Framingham Children's Study. Children who consumed the fewest dairy servings per day had statistically greater gains in BMI and body fat than those who consumed more dairy. The researchers concluded that low levels of dairy may be associated with a greater acquisition of body fat during childhood.
  Moore LL, Singer MR, Bradlee ML, Gao DI, Hood M, Ellison RC. Low intakes of dairy products in early childhood may increase body fat acquisition. *Obesity Research* 2003; 11(S): 130-OR.

- Children who ate more dairy foods and had moderate intake of dietary fat gained less weight and fat over an eight-year period than children who ate fewer dairy foods and had low or high intakes of dietary fat.
  Moore LL, Singer MR, Bradlee ML, Ellison RC. Dietary predictors of excess body fat acquisition during childhood. *Circulation* 2004; 109(7):5, No. 3.

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- In a sample of 603 children ages 4-12, those who consumed more ready-to-eat cereal with milk had lower BMIs and were at lower risk for being overweight than children who ate less ready-to eat cereal with milk. Calcium intakes were higher for the high cereal consumers who also had a more appropriate body weight. Furthermore, children who ate more ready-to-eat cereal with milk had better nutrient intake profiles including lower fat and cholesterol intake but greater intake of vitamins A, B-6, thiamin, riboflavin, niacin, folate, calcium, iron, and zinc.
  Albertson AM, et al. Ready-to-eat cereal consumption: its relationship with BMI and nutrient intake of children aged 4 to 12 years. *Journal of the American Dietetic Association*. 2003; 103(12):1613-1619.

- In children followed from age 2 to 8, a higher dietary calcium intake from calcium-rich foods like milk, cheese and yogurt was associated with a lower percentage of body fat.
  Skinner JD, Bonds W, Carruth BR, Ziegler P. Longitudinal calcium intake is negatively related to children's body fat indexes. *Journal of the American Dietetic Association*. 2003; 103(12):1626-1631.

- By reviewing diet questionnaires of overweight and normal-weight 10- to 14- year-old students, Hungarian researchers found that the heaviest children had the lowest intake of calcium from dairy foods.
  Lelovics, Z and Tarnavolgyi, G. Relation between calcium intake and obesity. Presented at the 13th European Congress on Obesity. *International Journal of Obesity and Related Metabolic Disorders*. 2004; Supplement 1(28): S169. Abstract.

- Obese Greek adolescents 11, 13, and 15 years were found to skip breakfast more and eat less fruits and milk than normal weight Greek students.
  Tsakalou Z, et al. Prevalence of obesity/overweight and eating habits in Greek adolescents. Presented at the 13th European Congress on Obesity. *International Journal of Obesity and Related Metabolic Disorders*. 2004; Supplement 1(28): S203. Abstract.

- A study of 1701 children from 3rd to 7th grade in nine schools in Chile found a significant association between obesity and low intake of dairy products. While intake of energy-dense foods and TV watching time appeared as risk factors, only dairy consumption was associated with a significant inverse association with obesity.
  Olivares S, Kain J, Lera L, Pizarro F, Vio F, Moro'n C. Nutritional status, food consumption and physical activity among Chilean school children: A descriptive study. *European Journal of Clinical Nutrition*. 2004. 58:1278-1285.

For more information about the science supporting dairy and weight management, visit:
www.nationaldairycouncil.org
www.healthyweightwithdairy.com
www.2424milk.com